

CLAIMS

1. A device for transporting biological fluid in at least a part of an extracorporeal circuit, said at least part of the extracorporeal circuit being disposable and comprising at least one pressure sensor configured to be in fluid communication with the biological fluid during use, characterized in that the at least one pressure sensor is configured for sensing a difference between a pressure of the biological fluid and a reference pressure and comprising an electric circuit that is configured to be energized by an applied alternating first electromagnetic field and configured to communicate information indicative of a pressure from the pressure sensor via a second alternating electromagnetic field.
- 10 2. A device according to claim 1, where the sensor comprises a compressible container, the compression or expansion of which is indicative of the pressure.
- 15 3. A device according to claim 2, where the pressure sensor comprises components in the form of a capacitance and an inductance, of which components at least one is a variable component which varies with the compression and/or expansion of the container, said capacitance and inductance forming a resonance circuit for the applied alternating electromagnetic field.
- 20 4. A device according to claim 3, wherein the capacitance is variable.
- 25 5. A device according to any of claims 2 to 4, wherein the container has the form of a substantially rigid box with a membrane on one side.
- 30 6. A device according to any of claims 3 to 5, wherein a part of the variable component is arranged on the membrane.
- 35 7. A device according to any of claims 3 to 6, wherein a part of the variable component varies with the movement of the membrane.

8. A device according to any of claims 3 to 7, wherein a part of the variable component is formed from or by the membrane.

9. A device according to any of claims 3 to 8, 5 wherein the device is configured by way of its resonance frequency to be indicative of the intended use of the device.

10. A device according to any one of the preceding claims, wherein the pressure sensor is arranged within 10 the device.

11. A device according to any one of the preceding claims, wherein the first and second alternating electromagnetic fields are one and the same electromagnetic field.

15 12. A device according to any one of the preceding claims, wherein the first and second alternating electromagnetic fields are in the radio frequency range.

13. A device according to any one of the preceding claims, wherein the pressure sensor is connected to the 20 extracorporeal circuit such that it forms a portion of the circuit.

14. A device according to any one of the preceding claims, wherein the device is insert molded.

15. A device according to any one of claims 1 to 13, 25 wherein the sensor is glued or welded to a wall of the extracorporeal circuit and thereby establishing a seal between the sensor and the circuit.

16. A device according to any one of the preceding claims, wherein at least a part of the extracorporeal 30 circuit is configured for dialysis, blood separation, blood donation, hemofiltration or cardiopulmonary bypass.

17. A device according to any one of the preceding claims, wherein at least a part of the extracorporeal circuit is selected from the group comprising dialyser, 35 cassette, ultrafilter, tube, connector, container, chamber, fluid bag, blood container, collection bags, pump segment part of lineset and oxygenator.

18. A device according to any one of the preceding claims, wherein the reference pressure is an atmospheric pressure.

19. Use of a device according to any one of the preceding claims during extracorporeal biological fluid management.

20. Use according to claim 19, wherein the fluid is blood.

21. Use according to claim 19 or 20, wherein the management is dialysis.

22. A system for managing biological fluids, comprising:

- a device according to any of claims 1 to 18,
- at least one transmitter configured to transmit an alternating electromagnetic field to at least one sensor in the device,
- at least one receiver configured to receive radio frequency information from the device, wherein the received information is indicative of at least one pressure sensed by the device, and
- a control unit configured to control the transmitter and the receiver.

23. A system according to claim 22, wherein the at least one sensor is located in close proximity to the at least one transmitter and the at least one receiver.

24. A system according to claim 22 or 23, wherein the system forms part of a dialysis machine.

25. Use of a system according to any of claims 22 to 24 during extracorporeal biological fluid management.

26. Use according to claim 25, wherein the fluid is blood.

27. Use according to claim 25 or 26, wherein the management is dialysis.

28. A method of pressure sensing in a biological fluid using a system according to any of claims 22 to 24, comprising the steps:

- providing at least one alternating electromagnetic

field,

- sensing the at least one alternating electromagnetic field as modified by a pressure sensor configured to affect the field in dependence on a

5 pressure, and

- providing the sensed field as a signal that is indicative of the pressure sensed by the sensor.